RIVER ROAD BRIDGE
Crossing Casselman River
on Casselman River Road
Grantsville vicinity
Maryland [GARRETT COUNTY]

HAER No. MD-119

HAER
MD,
12-GRANT.V,
2-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

HISTORIC AMERICAN ENGINEERING RECORD

RIVER ROAD BRIDGE

HAER No. MD-119

HAER
MD,
12-GRANT.V,
2-

Location: Crossing Casselman River on Casselman River Road, Grantsville vicinity, Garrett County, Maryland

UTM: 17.659680.4396120
Quad: Grantsville, Maryland-Pennsylvania

Date of Construction: Constructed circa 1884

Present Owner: Garrett County
Roads and Bridges Department
Oakland, Maryland

Present Use: Vehicular bridge

Significance: River Road Bridge is a pin-connected Pratt through truss bridge. Designed and built circa 1884 under authority of Garrett County, the bridge carries Casselman River Road over the Casselman River near Grantsville, Maryland. A representative Pratt metal truss bridge of the late nineteenth century, River Road Bridge has been determined eligible for listing in the National Register of Historic Places by the Maryland Historical Trust.

Project Information: This documentation was undertaken from August 1992 through April 1993 by Garrett County as a mitigation measure prior to removal of the bridge.

P.A.C. Spero & Company
Historic Structures Consultants
Baltimore, Maryland
for Garrett County

Located near Grantsville in Garrett County, Maryland, River Road Bridge carries Casselman River Road over the Casselman River. The bridge has spanned the river since its construction under Garrett County authority circa 1884, in conjunction with the opening of Casselman River Road from the vicinity of Grantsville to the Pennsylvania-Maryland border.

River Road Bridge is a single span, metal Pratt through truss bridge with inclined endposts, resting on cut stone masonry abutments. The truss configuration of River Road Bridge consists of five panels, each panel 16.5 feet in length, covering a total length of 82.5 feet (85 feet from backwall to backwall of abutments). All joint connections between the built-up members of the bridge trusses are pin-connections.

A lightly-structured bridge, River Road Bridge is composed of compression and tension members typical for metal Pratt truss bridges of its era. Each upper chord consists of two channels with cover plate and stay plates. The lower chords consist of double, die-forged eyebars. The verticals and inclined endposts of the bridge are double channels with lacing bars. The diagonals of each of the intermediate panels consist of double rectilinear eyebar rods. The two center panels include crossed, double rectilinear eyebar rods. One set of double rods in the center panel of the east truss include 1-1/4 inch turnbuckles so that adjustments can be made in the resistance offered to tensile forces. The exterior diagonal eyebar rod in the south intermediate panel of the west truss is also equipped with such a turnbuckle. The bridge trusses have inclined endposts that extend the full length of each end panel (16.5 feet). Mounted on the interior of each truss is a light metal railing consisting of small laced bars forming a two-row rectangular pattern.

The deck of River Road Bridge is supported by four riveted transverse floor beams and five riveted longitudinal stringers. All stringers and floor beams are metal. The bridge rests on cut stone abutments with wingwalls; the southeast wingwall has been partially knocked down. The bridge carries a single traffic lane on a three-inch thick timber deck. The clear roadway width of the bridge is approximately 12.2 feet (center-to-center, the trusses are 13.2 feet apart). The four floorbeams of the bridge are approximately 9 feet above the average elevation of water in the Casselman River. Each of the bridge approaches along Casselman River Road is characterized by an abrupt 90 degree curve.

Historical evidence indicates that River Road Bridge was most probably constructed by Garrett County in 1884, in order to better facilitate commerce between the Grantsville region and points in northeastern Garrett County and southwestern Pennsylvania. The bridge was directly associated with the opening of Casselman River Road, which linked local farms to markets and mills along the National Road (now old U.S. Route 40) at "Little Crossings" near Grantsville.

First settled by European colonists during the mid-eighteenth century, Garrett County was officially established as a new county through partition of Allegany County in 1872. The westernmost county in Maryland, Garrett County is also the most mountainous and least densely populated of Maryland counties. The North Branch of the Potomac River constitutes the county's winding southern boundary, while the northern portion of the county entirely borders Pennsylvania. Tributary to the Ohio River, the Youghiogheny River and several feeder streams, including Casselman River, Bear Creek, and Deep Creek, also are located in the county. Although criss-crossed by the high elevations of the western ridge of the Allegheny Range, the county is marked by so-called "glades" or grassy pastures. Legacies of the retreat of Ice Age glaciers, these distinctive wetlands once characterized most of the stream valleys of the county, including upper portions of the Casselman River basin.

Since the middle of the eighteenth century, life and labor in the Grantsville and Casselman River valley region has successively centered on farming, commerce along the National Road (precursor to today's Route 40) and at Grantsville, and a major lumbering operation complete with a railroad running parallel to the Casselman River from Garrett County woodlands into Pennsylvania. Earliest colonial settlement in the Grantsville area apparently occurred in 1768, when John Sloan entered and farmed a tract of land known as "Grassy Cabin Survey", located in the bottomlands between Slabaugh Run and the west bank of the Casselman River about a mile north of the present site of River Road Bridge. Braddock's Road, a rough military thoroughfare cut through the wilderness by British General Edward Braddock's troops in 1755, ran through the area parallel to, but some distance north of, the present old Route 40. In 1812, anticipating the construction of the National Road adjacent to his property, Sloan and his family attempted to start a town known as "Sloanesville" on his tract. This effort failed when Federal engineers laid out the National Road along an alignment a mile or more south of "Grassy Cabin Survey".

As an economic hub of the area, present-day Grantsville was preceded by "Little Crossings", located on the east side of Casselman River less than a mile from modern Grantsville at the current site of the Penn-Alps Restaurant and Study Center. During the 1790s, Jesse Tomlinson and associates built the first grist mill on the Casselman at Little Crossings, so-called to distinguish it from "Great Crossings" over the Youghiogheny River. The advent of the National Road in 1811-1812 allowed opening of a tavern and general store at Little Crossings, where the Casselman Bridge, a historic stone arch bridge currently listed on the National Register of Historic Places, was constructed in 1813. The Tomlinson mill (known locally as Stanton's Mill) eventually became a roller or turbine mill and operated continuously into the 1960s. During the past thirty years, the old inn and adjacent houses near the east side of the Casselman Bridge have been owned by

the Penn-Alps organization, a group dedicated to preserving the heritage of Pennsylvania-German crafts and providing a study center for the history of the Plain Sect people of the area.

Located less than a mile west of Little Crossings, Grantsville was laid out as a National Road town in 1832 by Daniel Grant and others. By the 1840s, the town boasted a blacksmith shop, several churches, and the Casselman Hotel, an inn and "drover's stand" (complete with cattle corral) built by Solomon Sterner in 1842 and still in operation today on old U.S. Route 40. Grantsville was incorporated in 1864-1865, with amendments in 1878. The first major community west of Frostburg and Cumberland and the first overnight stopping place west of the formidable Keyser's Ridge in the Alleghenies, Grantsville played a key role in the encouragement of commerce along the National Road. Before automotive and truck traffic arrived in the early twentieth century, however, the town's economic prominence in Garrett County was overshadowed by Oakland, the county seat and a strategic stop on the Baltimore and Ohio Railroad. Laid out some thirty to forty miles south of the Grantsville area, the B. & O. Railroad drew commercial profits away from communities on the National Road.

Garrett County's economy historically has featured a diverse mix of agriculture, mining, lumbering, and resort recreation. The predominant economic activity throughout the nineteenth and early twentieth centuries was farming; by 1910, oat cultivation, corn growing, and stock raising were extensively practiced. Between 1850 and 1920, agricultural profits were generally spurred by introduction of mechanized farm equipment and scientific farming techniques. Numerous farms in the northern portion of Garrett County, in the vicinity of Grantsville, New Germany, and Accident, were first settled and worked by "Plain Sect" families of Amish and Mennonite background.

The heavy extractive industries of coal mining and lumbering flourished during the post-Civil War era, when the development of adequate technology and the pushing of the Baltimore and Ohio Railroad westward up the North Branch of the Potomac promised good returns to entrepreneurs such as railroad president John Work Garrett and lumber baron Henry Gassaway Davis. As mines were sunk and forests cut, tramroads and narrow-gauge lines brought coal and timber to processing and marketing centers along the rivers and major railroads. Garrett, Davis and their B&O associates also promoted the recreation industry of Garrett County, founding a posh resort hotel at Deer Park in 1872. The Deer Park resort, which attracted a wealthy clientele, closed in 1924.

Also founded under B. & O. Railroad auspices, the well-appointed Oakland Hotel operated in the county seat across the tracks from the Oakland Railroad Station between 1875 and 1907. A longer-lived summer community of a decidedly different kind was Mountain Lake Park, which for sixty years (1881-1941) served as Maryland's "Mountain Chautauqua", offering topical and religious courses as well as a forty-acre lake for swimming. Largest and most successful of all Garrett County vacation attractions is the twelve-mile long Deep Creek Lake, formed in 1925 by the Youghiogheny Hydroelectric Corporation as a

storage reservoir for power generation. The recreational development of Deep Creek Lake thoroughly transformed the economy and physical geography of central Garrett County during the twentieth century.

Post-Civil War extension of the Baltimore and Ohio Railroad into Garrett County offered transportation facilities for the industrial company towns as well as the railroad resort hotels and Mountain Lake Park. Of equal importance, however, was the gradual, slow growth of a reliable road system within the county. Although state and Federal authorities took an interest in vehicular transportation in the upland plateau region of Maryland from an early date, road construction and maintenance posed a continual problem for Garrett County residents during the nineteenth and early twentieth centuries. Constructed and maintained under Federal auspices from 1811 to 1833, the pioneering National Road or Cumberland Road (precursor to today's old U.S. Route 40) ran westward from Baltimore and Cumberland to Wheeling, passing through the northeast Garrett County town of Grantsville, where inns catered to travelers in the heyday of stagecoach and wagon traffic before the Civil War. A key factor in the prosperity of Grantsville and environs, the National Road nevertheless required large expenditures and constant maintenance to avoid becoming nearly impassable.

The 1899 Maryland Geological Survey Report on the Highways of Maryland profiled Garrett County's road network during the peak period of extractive industry in the county. Characterized by steep grades, narrow width, and dirt roadbeds filled with rocks and potholes, the county's 650 miles of road were generally "the roughest in the state." Some roads were originally cut through as lumber roads and "were scarcely more than clearings," and many roads "on a sidehill location" were too narrow for teams to pass. The twenty-two mile long section of the National Road was the only stone-surfaced road in the county, but was "in many places . . . worn down to the large foundation stones." With no tolls collected since 1878 and traffic on the wane, the National Road was "in bad condition" despite an annual county appropriation of $600 for repairs.

Although many industrial companies employed scientific technology to tap and transport the rich mineral and timber resources of the area, Garrett County, on the eve of the twentieth century, did not yet include a professional roads department. Road repair remained "under the immediate control of 167 supervisors," each of whom managed five road workers drawn from the surrounding vicinity. Approximately one week per year was spent on roadwork by the supervisors and their crews. The Maryland Geological Survey regretfully noted that "the steep grades on most of the county roads which resulted from inattention to their proper locations when the roads were first laid out can only be remedied by relocation." Soil composition (primarily clay with sand) allowed "very good dry-weather roads," but "with much travel they become deep with dust in dry weather or with mud in wet weather." Between 1889 and 1898, Garrett County levied a total of $113,414 for road work, of which $90,745 was spent for road repairs, $16,199 for bridges, but only $6,508 on new road construction.

In the latter half of the nineteenth century, Grantsville residents hoped for commerce on a north-south axis along the Casselman River valley to supplement and perhaps supplant the old but unreliable reliance on National Road travelers. Though they could haul their grain to the mill at Little Crossings, local farmers so near the state line had always traded with merchants in such southwest Pennsylvania market towns as Elk Lick (later Salisbury) some seven or eight miles north of Grantsville. The farmers thus had ample reason to petition the Garrett County commissioners for the opening of what is now Casselman River Road during the late 1870s and early 1880s. Later, lumber entrepreneurs also did their share to improve the transportation network of the region. Between 1899 and 1901, the Jennings Brothers of Sullivan County, Pennsylvania, built a standard gauge logging railroad along the east side of the Casselman River from the vicinity of Salisbury, Pennsylvania, into wooded tracts located on Meadow Mountain in central Garrett County. The twelve-mile rail line extended to a point approximately eight miles south of the National Road.

In 1918, with most area timber logged out, sections of the Jennings Brothers Railroad in the depleted tracts were removed. Much of the rail line remained in operation to transport coal and farm products from 1921 until 1959, when the tracks were finally taken up and operations completely shut down. Successor to Jennings Brothers as owner and operator of the railroad, the Northern Maryland and Tidewater Railroad maintained a station and a freight shed or lumber depot on the line near its crossing of the National Road just east of Grantsville and the Casselman River. The tracks also crossed the present Casselman River Road less than a half-mile south of River Road Bridge.

The 1898 survey map of the Grantsville area issued by the Maryland Geological Survey depicted Casselman River Road on its present alignment, bridging the river at the present site of River Road Bridge. Although county records are incomplete, historical research indicates that the present bridge was most likely built by Garrett County in 1884, in response to petitions of local residents and farmers who secured the original opening of Casselman River Road from the National Road to the Pennsylvania line. On May 7, 1878, Abraham Maust, Jacob Gnagy, and Henry Wagner petitioned the county commissioners to "view and lay out a road leading from the Pennsylvania line to the Crossing Bridge on National Road west of Castleman River..." With their petition, the three men enclosed a rough map sketching the alignment of the road, which was to run north from the west end of the old Casselman Stone Bridge but remain on the west side of Casselman River.

Maust, Gnagy and Wagner then published the requisite "road notice" in several issues of the Oakland Republican, but the road as they first envisioned it was never constructed. Although the viewers report apparently has not survived, a notation on the petition states that the Maust-Gnagy-Wagner road as initially proposed was viewed and the viewers report of June 4, 1878 was "laid over", indicating that the county commissioners desired more time to consider the matter. The petition notes also that eventually the road petition was "adopted as amended", but no evidence exists that the proposed road or any variant of it was built in 1878. The likely obstacle that year was some strong opposition, led by the prominent Grantsville and Little Crossings merchant Samuel Beachy and associates.

On July 3, 1878, Beachy, Austin Speicher, and Melchior Weller were named to examine (or possibly reexamine) a proposed road along Casselman River, in response to a new petition from Elisha Umble, Zadoc Green and others. As this second 1878 petition is lost, it is not known whether Umble and Green were now requesting a road along the east side of the river, rather than the west-of-river route initially petitioned by Maust, Gnagy and Wagner. The examiners viewed the proposed Umble-Green route on September 7, 1878 and reported against its adoption. Their examiners report indicated that the suggested road "would only be for the convenience of one person, namely, Mr. John Watson, who we find has two ways of getting out to the Mill, Store, Church, etc., without fording the river." Noting that the road or its construction would cut off water from a portion of John Augustine's farm, Beachy, Speicher and Weller observed that "the citizens in the vicinity of said petitioned road are almost unanimously opposed to the location of said road." As neither the Umble-Green petition nor any sketch maps of their proposed road survive, these statements are difficult to verify.

The record is clear, however, that Casselman River Road as it now exists was laid out in 1884, pursuant to order of the county commissioners. Local differences regarding alignments had been settled, for Samuel Beachy forwarded the favorable viewers report to the county commissioners on February 27, 1884. The viewers themselves were Maust, Gnagy, and Wagner, the proponents of the original, unsuccessful 1878 route from Little Crossings to the state line. Also dated February 27, 1884, the viewers report recommended a "bridge to be built across the Casselman River" at the "2nd Mile Mark" from the road's beginning at the Pennsylvania-Maryland border. Beachy's hopeful covering note to the commissioners regarding this new "Road No. 35" revealed that its distance had been measured at 2-3/4 mile and 22 rods from the state line to the "National Turnpike." Beachy "most earnestly" prayed that the county "give us this road and grant us a liberal levy so we can open it this summer."

Beachy also offered some details concerning the proposed bridge that would span Casselman River along the new river road, observing that "the bridge will have to be 75 or 80 feet long." He promised to "get estimation of stone mason what abutments would cost" and send it to the commissioners. On March 1, 1884, Beachy sent such an estimate, from local mason Hiram B. Fuller, who "is a good workman and understands his business and [has] been over the location and thinks we might have 500 dollars to make the road as there is so many gullies to fill up..." According to Beachy, Fuller thought the abutments could be built from stones that were "quite handy." At this stage, Beachy also believed that the bridge would have three spans, each 16 feet in length. Fuller's estimate included a diagram of a typical abutment, with "front wall" 15 feet long and two wingwalls of differing length (16 and 14 feet). Perhaps possessing more official knowledge than Beachy, Fuller stated that each abutment would consist of "front wall 3 feet thick wing walls 2 feet thick all 7 feet high from low water foundation deep enough to be sufficient to build on", with "the estimate at two hundred & fifty dollars" for an "eighty feet span."

As Beachy hoped, the viewers' report was approved by the Garrett County Commissioners on July 9, 1884. Unfortunately, no further county records survive concerning the construction of River Road Bridge which does not currently bear a date plate. Although it is not definitely known whether the present Pratt through truss carrying Casselman River Road over Casselman River is the bridge that was built in 1884, it is likely that Fuller's estimate for making the abutments was secured because county authorities and local residents were preparing the site for the erection of a metal bridge (the "eighty feet span" Fuller referenced in his estimate). Such preparation for the erection of a metal truss bridge by local masons was common in the late nineteenth century, when bridge companies offered to fabricate trusses and ship them to sites readied by local authorities. The roughhewn stone blocks of the abutments of River Road Bridge strongly suggest local quarrying and placement of the masonry.

Whenever taken, the decision to build River Road Bridge as a metal Pratt through truss bridge was made in the context of the successful usage of such bridges at numerous crossings throughout the United States. In his 1908 handbook The Design of Highway Bridges and the Calculation of Stresses in Bridge Trusses, consulting engineer and civil engineering professor Milo S. Ketchum offered a succinct definition of the truss:

> A truss is a framework composed of individual members so fastened together that loads applied at the joints produce only direct tension or compression. The triangle is the only geometric figure in which the form is changed only by changing the lengths of the sides. In its simplest form every truss is a triangle or a combination of triangles. The members of the truss are either fastened together with pins, pin-connected, or with plates and rivets, riveted.

The basic components of a simple metal truss bridge include top and bottom chords, web members characterized as verticals or diagonals and connected to the chords at joints, the lateral bracing, stringers, floor beams, and deck. The particular arrangement of the chords and the web members determines the specific truss type. The portal is the space of a truss which forms the entrance to the bridge, while stringers consist of the longitudinal members, placed parallel to the direction of traffic, which transmit the highway deck loads to the floorbeams. These are set transverse to the direction of traffic in order to convey such deck loads to the bridge trusses. The deck provides direct structural support for the loads caused by vehicular traffic. The truss generally rests on piers or abutments at points designated bearing seats.

Initially constructed of wood, truss bridges were first built of cast iron during the 1840s along the route of the Erie Canal. Early builders gradually made the shift from wood to iron, with many transitional structures featuring iron rods solely for tension members and wood for the remainder of the truss. In 1847, the renowned bridge builder Squire Whipple noted that cast iron, which fractures on impact and cannot carry tensile loads, was desirable for use in compression members, while wrought iron, being ductile and not brittle, was best suited for members in tension. By 1850, with rolled wrought iron shapes becoming more

widely available, more truss bridges were being built solely of metal. After the Civil War, large bridge companies proliferated, and between 1880 and 1895, a second transition was made from wrought iron to structural steel.

A wide variety of truss types was developed during the late nineteenth and early twentieth centuries. Many were variations of the Pratt truss, patented by Thomas and Caleb Pratt in 1844. The Pratt truss has its vertical members in compression while its diagonal web members resist the tensile force. Generally pin-connected rather than riveted (pin-connected trusses could be assembled on site in an era when riveting could still only be accomplished in the shop), Pratt trusses were popular from the mid-nineteenth century through the early twentieth century. Bridge engineer and historian J.A.L. Waddell in his 1884 text The Designing of Ordinary Iron Highway Bridges observed that some 90% of all post-Civil War truss bridges were of the Pratt or Whipple type. In 1916, Waddell noted that the Pratt truss was the most commonly used truss type for spans under 250 feet in length. By 1910, Pratt through trusses (bridges in which the deck is located near the bottom chord) were available in many different forms.

Thus, Garrett County's selection of a Pratt through truss span for Casselman River Road was a logical choice for a durable yet economical span at the site. The truss configuration of River Road Bridge consists of five panels, each panel 16.5 feet in length, covering a total length of 82.5 feet (85 feet from backwall to backwall of abutments). All joint connections between the built-up members of the bridge trusses are pin-connections. The exterior diagonal eyebar rod in the south intermediate panel of the west truss, and one set of double eyebar rods in the center panel of the east truss of the bridge, are equipped with 1-1/4 inch turnbuckles so that the resistance offered to tensile forces could be adjusted.

River Road Bridge is lightly-structured and composed of compression and tension members characteristic of Pratt metal truss bridges of its era. Each upper chord consists of two channels with cover plate and stay plates. The lower chords are double, die-forged eyebars. The verticals and inclined endposts of the bridge are double channels with lacing bars. The diagonals of each of the intermediate panels consist of double rectilinear eyebar rods.

The two center panels feature crossed, double rectilinear eyebar rods. The bridge trusses have inclined endposts that extend the full length of each end panel (16.5 feet). As early as 1884, noted bridge engineer J.A.L. Waddell advocated the superiority of such inclined endposts over vertical endposts. Mounted on the interior of each truss of River Road Bridge is a light metal railing consisting of small laced bars forming a two-row rectangular pattern. Simple utilitarian metal railings of similar design have been identified on other metal truss bridges in Garrett County and may have been a standard feature recommended or required by county engineers. River Road Bridge is otherwise unornamented and does not currently bear a date plate or bridge plaque.

The deck of Bridge No. 109, River Road Bridge, is supported by four transverse riveted floor beams and five riveted longitudinal stringers. The bridge rests on cut stone abutments with wingwalls and carries a single lane of traffic on a three-inch thick timber deck. The clear roadway width of the bridge is approximately 12.2 feet (center-to-center, the trusses are 13.2 feet apart). The four floorbeams of the bridge are approximately 9 feet above the average elevation of water in the Casselman River, but inspection reports have noted flood debris caught in the deck stringers.

Few post-1884 records survive concerning River Road Bridge. The 1898 topographic survey of the area by the Maryland Geological Survey depicted Casselman River Road running in its current course, with a bridge crossing the river at the point where River Road Bridge is located. No records concerning the early maintenance of Bridge No. 109, River Road Bridge, have been retained by the county, and a search of available county commissioners minute books (1920-present only, as volumes from 1872 to 1920 have been lost or misplaced) produced no references to county actions regarding the bridge.

In 1947, a stream gauging station was installed at the northeast corner of Bridge No. 109 by the Maryland Geological Survey. In an associated report, the bridge was described simply as the "steel bridge" on "county highway, 0.8 mile upstream from Slaubough Run, 0.8 mile downstream from U.S. Route 40 and 1.0 mile northeast of Grantsville, Garrett County." No further records have been found relating to River Road Bridge but it is likely that the bridge has performed its intended economic purpose at the site since its construction in the late nineteenth century. Currently River Road Bridge is rated in poor condition and is slated for replacement.

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